# BLACK

# BLK-HDPTZ12 2 Megapixel 12x HD-SDI / HDcctv PTZ Dome Camera User Manual

Product: BLK-HDPTZ12

Please read this manual before using your camera, and always follow the instructions for safety and proper use. Save this manual for future reference.

BLK-HDPTZ12_CM
1/21/13

## REGULATORY NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions;

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense."

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## Precautions

- Any changes or modifications to this camera which are not expressly approved by the party responsible for compliance could void the user's authority to operate the camera.
- A regulated 24 Vac 2.5 A power supply is recommended for use with this camera for best picture and the stable operation. An unregulated power supply can cause damage to the camera. Any use of an unregulated power supply will void the product warranty.
- Use this camera with a CCTV quality monitor with a 75 Ω input impedance. If your monitor is configured for high impedance, then adjust it accordingly before connecting the camera to it.
- Never point the camera towards the sun or any bright or reflected light. Very bright light may cause smear on the picture and possible damage to the camera imager.
- Do not remove the product label. It is important for warranty service.

## Important Safety instructions

- Read and follow the instructions contained manual. Keep this manual for future reference.
- Heed all warnings.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the instructions included herein.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers).
- Protect the power cord from being walked on or pinched.
- Only use attachments and accessories specified by your dealer.
- Use only with the cart, stand, tripod, or bracket specified by the manufacturer or sold with the camera. When a cart is used, use caution when moving the cart/camera combination to avoid injury from tip-over.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus is damaged, such as a faulty power supply cord or plug, or objects have fallen into the unit, it does not operate normally, or has been dropped.

**NOTES**

# SECTION 1
# Introduction

These high definition indoor/outdoor PTZ (pan / tilt / zoom) dome camera feature a 1/3" CMOS 2.1 megapixel sensor that provides full HD quality 1080p @ 30 fps. Features include:

- Autofocus, high resolution integrated color camera
- 120x Zoom (12x optical, 10x digital)
- IP66 (weatherproof) rated outdoor operation
- WDR (wide dynamic range)
- BLC/HSBLC
- DNR (digital noise reduction)
- Day & Night (auto / BW / color)
- Pan 360° endless rotation
- Tilt 180° vector scan available
- 210 preset positions (except short-cut command)
- 8 auto scan
- 8 pattern
- 8 tours consist of presets, patterns and scans
- 4 alarm input (off / N.C. / N.O.) and 1 alarm output (off / N.C. / N.O.)
- User programmable setting (preset, auto scan, pattern, tour, home function, alarm action, etc)
- Programmable PTZ speed: Proportional to zoom ratio, changeable preset speed
- Multi-language OSD support
- Private mask zone support
- Standard protocol including Pelco-D / Pelco-P
- Up to 255 camera IDs
- RS-485 receiver
- 24 Vac powering
- IP66 rating (weatherproof)

## 1.1 What's in the box

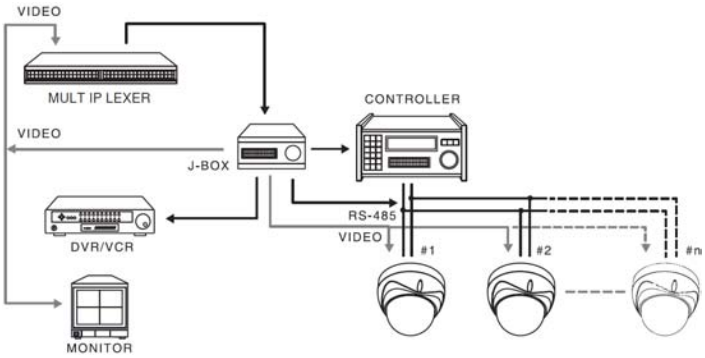
Your camera includes the following:

- PTZ camera module
- Wall mount bracket
- User manual (this document)
- Lag bolts, washers and plastic wall anchors (4 each)
- Screws and plastic wall anchors (alternate mounting hardware, 4 each)
- 24 Vac terminal plug, RS-485 terminal plug, and an alarm terminal plug
- L-wrench

A 2 foot camera module drop cable is routed into the mounting bracket and attached to trunk cables there. Trunk cables for HD-SDI video, composite video, power, alarms and RS-485 can be routed either through conduit connected to the conduit port, or in through the base of the mounting bracket.

## 1.2 System configuration

The following illustration shows a typical PTZ camera network that includes multiple cameras, a PTZ controller, a video distribution box (J-box), multiplexer, DVR/VCR, and a monitor.

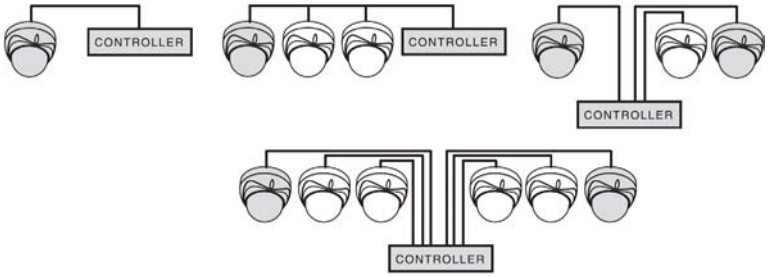



In the diagram above, video output from each camera on the network is applied to a distribution box (J-box), then connected to a multiplexer, DVR/VCR, and monitor.

The PTZ features of the cameras are controlled across an RS-485 network with a PTZ controller. Up to 99 BLK-HDPTZ12 cameras can be attached to a single RS-485 network.

## 1.2.1 RS-485 network termination

RS-485 networks are usually configured as a series of point-to-point (multidrop) nodes, a line or a bus (star or ring configured networks are not recommended). Termination resisters are required for devices at the ends of the bus to reduce signal reflections in the network that can cause data corruption. The value of each termination resistor should be equal to the cable characteristic impedance, typically 120 ohms for twisted pair cable. In the following illustration of network examples, the grayed devices are configured to apply termination to the RS-485 bus.



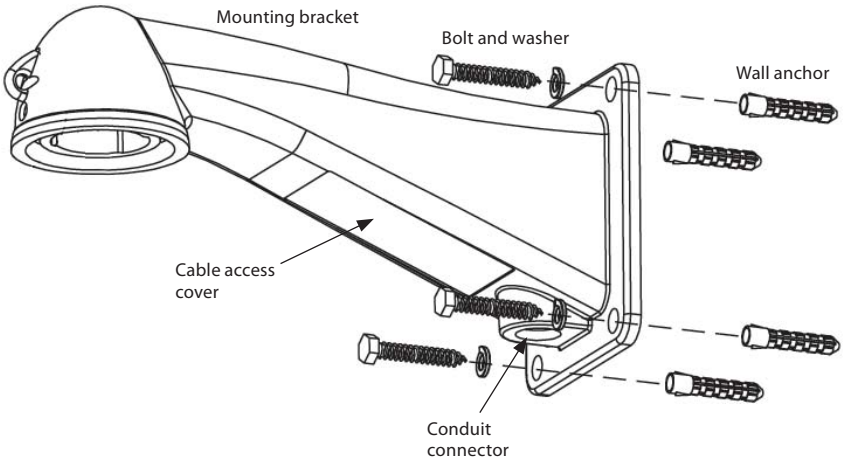
# SECTION 2
# Installation

## 2.1 General Guidelines

- The camera drop cable connects to the network cables (RS-485, alarm in/out, HD-SDI video out, 24 Vac power leads) inside the mounting bracket provided with the camera. A cable access cover on the underside of the mounting bracket allows access to cable connections, and to the composite video monitoring drop.
- Network cables can be routed into the mounting bracket through conduit attached to the underside of the mounting bracket, or through the mounting bracket mounting.
- Hardware configuration switches (for camera ID, video mode, RS-485 protocol, etc.) are accessible when the camera dome cover is removed.
- Position the camera in a location where it provides the best visibility of your surveillance targets, and is difficult to tamper with or damage.
- Use extra care to avoid damaging the camera dome cover.

## 2.2 Install the mounting bracket

1. Using the mounting bracket as a template, mark the location of the mounting screw/wall anchor holes. Although bolts, washers and wall anchors are included with the camera, these may not be appropriate for the surface where the bracket will be attached. Always use the appropriate mounting hardware to ensure that the bracket is securely attached to the mounting surface.

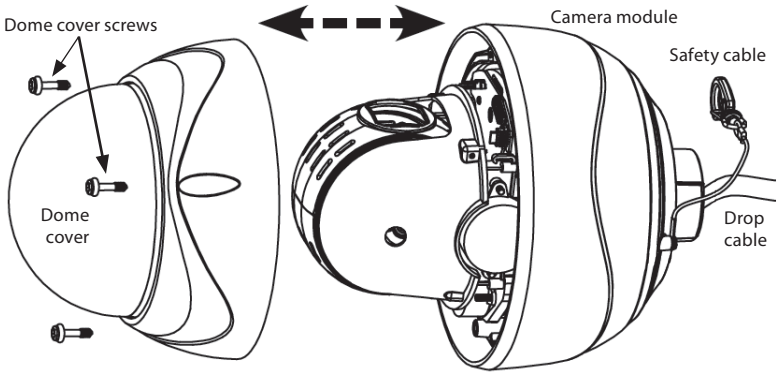


2. Drill holes in the mounting surface for the wall anchors (if used) or mounting bolts.
   - If the network cables will be routed into the mounting bracket where it attaches to the wall, drill an appropriate hole for the network cables.
3. Attach the mounting bracket securely to the mounting surface using appropriate mounting hardware.
4. If conduit will be used to shield the network cables, install the conduit and attached it to the mounting bracket.
5. Remove the cable access cover from the mounting bracket.
6. Route the network cables (RS-485, alarm in/out, HD-SDI video, 24 Vac power leads) into the mounting bracket.

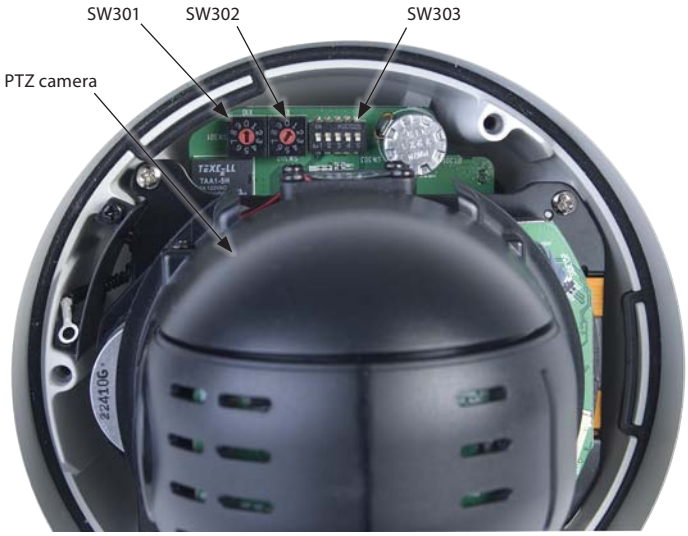
## 2.3 Set the camera hardware configuration switches

The camera hardware configuration switches are located inside the camera module. These configuration switches set the camera device ID, video mode (NTSC or PAL), and RS-485 protocol, baud rate, and termination state.

1. Remove the camera module from the packaging and place it on a flat, clean surface.
2. Remove the three screws securing the dome cover and set it apart from the camera module. Note that the dome cover is connected to the camera module with a retaining cable (not shown below).




3. Set the hardware configuration switches as required for your installation. Switch functions are described below.




*Camera hardware switches (looking into the camera with dome removed)*

### SW301, SW302 switches

The SW301 and SW302 rotary switches are used to set the camera ID number in hexadecimal notation as follows:

- SW301: set to the left digit of the two-digit device ID in hexadecimal.
- SW302: Set to the right digit of the two-digit device ID in hexadecimal.

In the example above, SW301 is set to "0" and SW302 is set to "1". Therefore, the device ID is set to "01" hexadecimal (0x01), which equates to an ID = 1 decimal). See "Table 1. SW301, SW302 switch setting (Camera ID) reference" on page 7.

## Table 1. SW301, SW302 switch setting (Camera ID) reference

| ID | S301 | S302 | ID | S301 | S302 | ID | S301 | S302 | ID | S301 | S302 | ID | S301 | S302 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 52 | 3 | 4 | 103 | 6 | 7 | 154 | 9 | A | 205 | C | D |
| 2 | 0 | 2 | 53 | 3 | 5 | 104 | 6 | 8 | 155 | 9 | B | 206 | C | E |
| 3 | 0 | 3 | 54 | 3 | 6 | 105 | 6 | 9 | 156 | 9 | C | 207 | C | F |
| 4 | 0 | 4 | 55 | 3 | 7 | 106 | 6 | A | 157 | 9 | D | 208 | D | 0 |
| 5 | 0 | 5 | 56 | 3 | 8 | 107 | 6 | B | 158 | 9 | E | 209 | D | 1 |
| 6 | 0 | 6 | 57 | 3 | 9 | 108 | 6 | C | 159 | 9 | F | 210 | D | 2 |
| 7 | 0 | 7 | 58 | 3 | A | 109 | 6 | D | 160 | A | 0 | 211 | D | 3 |
| 8 | 0 | 8 | 59 | 3 | B | 110 | 6 | E | 161 | A | 1 | 212 | D | 4 |
| 9 | 0 | 9 | 60 | 3 | C | 111 | 6 | F | 162 | A | 2 | 213 | D | 5 |
| 10 | 0 | A | 61 | 3 | D | 112 | 7 | 0 | 163 | A | 3 | 214 | D | 6 |
| 11 | 0 | B | 62 | 3 | E | 113 | 7 | 1 | 164 | A | 4 | 215 | D | 7 |
| 12 | 0 | C | 63 | 3 | F | 114 | 7 | 2 | 165 | A | 5 | 216 | D | 8 |
| 13 | 0 | D | 64 | 4 | 0 | 115 | 7 | 3 | 166 | A | 6 | 217 | D | 9 |
| 14 | 0 | E | 65 | 4 | 1 | 116 | 7 | 4 | 167 | A | 7 | 218 | D | A |
| 15 | 0 | F | 66 | 4 | 2 | 117 | 7 | 5 | 168 | A | 8 | 219 | D | B |
| 16 | 1 | 0 | 67 | 4 | 3 | 118 | 7 | 6 | 169 | A | 9 | 220 | D | C |
| 17 | 1 | 1 | 68 | 4 | 4 | 119 | 7 | 7 | 170 | A | A | 221 | D | D |
| 18 | 1 | 2 | 69 | 4 | 5 | 120 | 7 | 8 | 171 | A | B | 222 | D | E |
| 19 | 1 | 3 | 70 | 4 | 6 | 121 | 7 | 9 | 172 | A | C | 223 | D | F |
| 20 | 1 | 4 | 71 | 4 | 7 | 122 | 7 | A | 173 | A | D | 224 | E | 0 |
| 21 | 1 | 5 | 72 | 4 | 8 | 123 | 7 | B | 174 | A | E | 225 | E | 1 |
| 22 | 1 | 6 | 73 | 4 | 9 | 124 | 7 | C | 175 | A | F | 226 | E | 2 |
| 23 | 1 | 7 | 74 | 4 | A | 125 | 7 | D | 176 | B | 0 | 227 | E | 3 |
| 24 | 1 | 8 | 75 | 4 | B | 126 | 7 | E | 177 | B | 1 | 228 | E | 4 |
| 25 | 1 | 9 | 76 | 4 | C | 127 | 7 | F | 178 | B | 2 | 229 | E | 5 |
| 26 | 1 | A | 77 | 4 | D | 128 | 8 | 0 | 179 | B | 3 | 230 | E | 6 |
| 27 | 1 | B | 78 | 4 | E | 129 | 8 | 1 | 180 | B | 4 | 231 | E | 7 |
| 28 | 1 | C | 79 | 4 | F | 130 | 8 | 2 | 181 | B | 5 | 232 | E | 8 |
| 29 | 1 | D | 80 | 5 | 0 | 131 | 8 | 3 | 182 | B | 6 | 233 | E | 9 |
| 30 | 1 | E | 81 | 5 | 1 | 132 | 8 | 4 | 183 | B | 7 | 234 | E | A |
| 31 | 1 | F | 82 | 5 | 2 | 133 | 8 | 5 | 184 | B | 8 | 235 | E | B |
| 32 | 2 | 0 | 83 | 5 | 3 | 134 | 8 | 6 | 185 | B | 9 | 236 | E | C |
| 33 | 2 | 1 | 84 | 5 | 4 | 135 | 8 | 7 | 186 | B | A | 237 | E | D |
| 34 | 2 | 2 | 85 | 5 | 5 | 136 | 8 | 8 | 187 | B | B | 238 | E | E |
| 35 | 2 | 3 | 86 | 5 | 6 | 137 | 8 | 9 | 188 | B | C | 239 | E | F |
| 36 | 2 | 4 | 87 | 5 | 7 | 138 | 8 | A | 189 | B | D | 240 | F | 0 |
| 37 | 2 | 5 | 88 | 5 | 8 | 139 | 8 | B | 190 | B | E | 241 | F | 1 |
| 38 | 2 | 6 | 89 | 5 | 9 | 140 | 8 | C | 191 | B | F | 242 | F | 2 |
| 39 | 2 | 7 | 90 | 5 | A | 141 | 8 | D | 192 | C | 0 | 243 | F | 3 |
| 40 | 2 | 8 | 91 | 5 | B | 142 | 8 | E | 193 | C | 1 | 244 | F | 4 |
| 41 | 2 | 9 | 92 | 5 | C | 143 | 8 | F | 194 | C | 2 | 245 | F | 5 |
| 42 | 2 | A | 93 | 5 | D | 144 | 9 | 0 | 195 | C | 3 | 246 | F | 6 |
| 43 | 2 | B | 94 | 5 | E | 145 | 9 | 1 | 196 | C | 4 | 247 | F | 7 |
| 44 | 2 | C | 95 | 5 | F | 146 | 9 | 2 | 197 | C | 5 | 248 | F | 8 |
| 45 | 2 | D | 96 | 6 | 0 | 147 | 9 | 3 | 198 | C | 6 | 249 | F | 9 |
| 46 | 2 | E | 97 | 6 | 1 | 148 | 9 | 4 | 199 | C | 7 | 250 | F | A |
| 47 | 2 | F | 98 | 6 | 2 | 149 | 9 | 5 | 200 | C | 8 | 251 | F | B |
| 48 | 3 | 0 | 99 | 6 | 3 | 150 | 9 | 6 | 201 | C | 9 | 252 | F | C |
| 49 | 3 | 1 | 100 | 6 | 4 | 151 | 9 | 7 | 202 | C | A | 253 | F | D |
| 50 | 3 | 2 | 101 | 6 | 5 | 152 | 9 | 8 | 203 | C | B | 254 | F | E |
| 51 | 3 | 3 | 102 | 6 | 6 | 153 | 9 | 9 | 204 | C | C | 255 | F | F |

**SW303 switch**

The SW303 block switch contains 5 on/off switches. These switches are used as follows:

- Switch 1 (video mode):
  - ON: CVBS is NTSC
  - OFF: CVBS is PAL

- Switch 2 (RS-485 protocol)
  - ON: Pelco P / D
  - OFF: Pelco P/ Others

- Switches 3 and 4 are used together to set the RS-485 baud rate as shown in the table below.

| Switch 3 | Switch 4 | Baud rate |
|---|---|---|
| Off | Off | 2400 |
| Off | On | 4800 |
| On | Off | 9600 |
| On | On | 38400 |

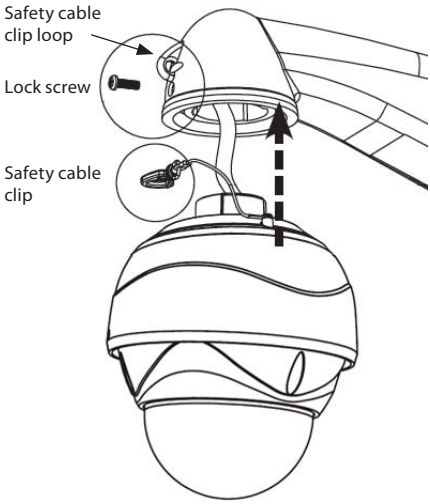
- Switch 5 sets the state of the RS-485 network termination:
  - ON: RS-485 terminated
  - OFF: RS-485 not terminated

4. Reattach the dome cover to the camera module with the three screws removed earlier.

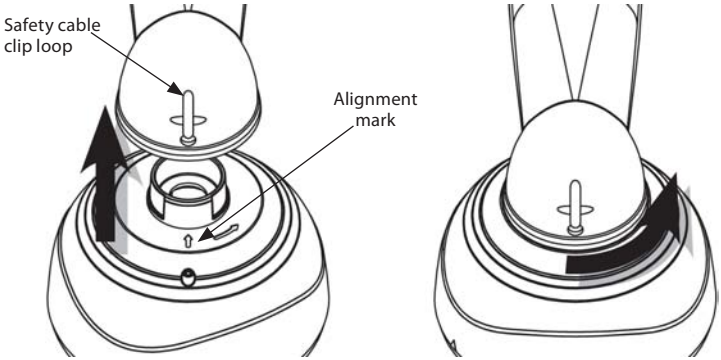
## 2.4 Attach the camera module to the mounting bracket

*When handling the camera with the dome cover attached, be extremely careful not to scratch or damage the dome cover.*

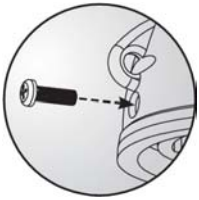
1. Lift the camera module to mounting bracket, then route the camera drop cable into the bracket and out through the cable access opening.



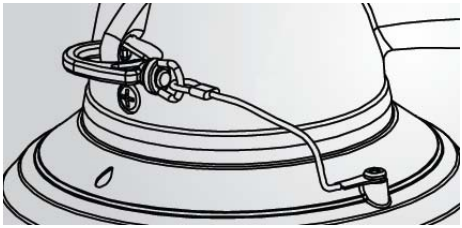

2. When inserting the top of the camera module into the mounting bracket, align the pointer on the camera module with the safety cable clip loop as shown below, then rotate the camera module until it is fully seated.



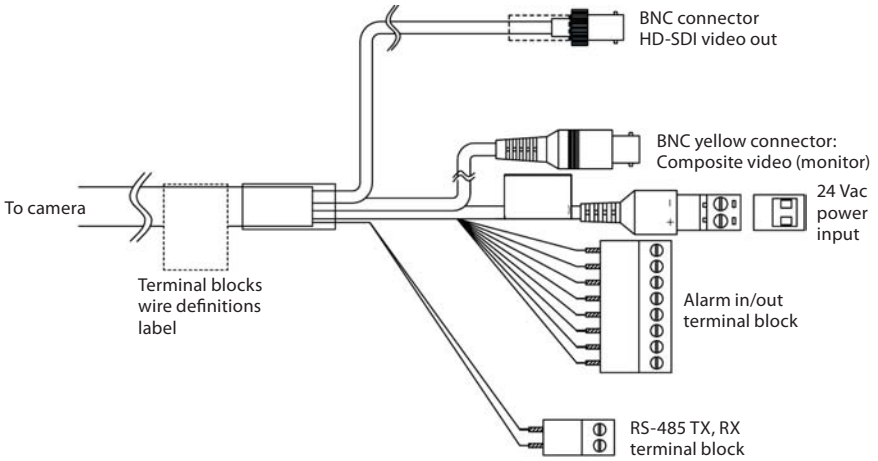

3. Tighten the lock screw.



4. Clip the safety cable to the loop on the mounting bracket.



5. Connect the network RS-485, alarm in/out, and HD-SDI cables to the camera drop cable. The alarm in/out terminal block pin definitions are shown on the label attached to the drop cable. The camera drop cable diagram is shown below.




6. Connect the network power leads to the 24 Vac power input terminal block.

7. Carefully pack the excess camera drop cable and network cable into the mounting bracket, then re-attach the cable access cover.

8. Clean the camera dome with an approved glass cleaning solution and a lint free cloth.

   — Dust can be removed from the unit by wiping it with a soft damp cloth. To remove stains, gently rub the surface with a soft cloth moistened with a mild detergent solution, then rinse and dry it with a soft cloth.
   — Remove all foreign particles, such as plastic or rubber materials, attached to the camera housing. These may cause damage to the surface over time.

*Do not use benzene, thinner or other chemical products on the camera assembly; these may dissolve the paint and promote damage of the surfaces. Before using any chemical product, read the accompanying instructions carefully.*

9. Apply power to the 24 Vac network power leads to power on the camera.

10. Connect the recorder end of the HD-SDI cable to a video monitor and verify that video from the camera can be seen there.

11. Configure your camera using the software menus in the OSD. See **Software Setup** in the following section of this manual.

# SECTION 3
# Software Setup - Operating Guide

## 3.1 Getting Started

Install and connect the dome to an interface device before using this operating guide. Once installed, apply power to the dome and the start-up screen is displayed on the monitor.

Before installing and operating the dome camera, please read this user's manual carefully. This dome camera can be operated using two methods:

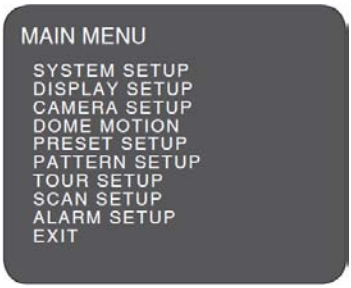
- Use hot keys [Refer to Appendix].
- Use OSD Menu on the monitor.

**NOTE** *Setting (saving) parameters in a sub menu may also require selecting* **Save** *in the next higher-level menu. For example, after {the position or title of Preset} is saved at 'Sub Menu', {the status of Preset Setup} has to be saved at* **Preset Setup Menu**.

**NOTE** *To stop an action, press the [***ESC***] button or press [96+Preset]. The camera will revert to manual mode or be temporarily paused (about 10 sec in Alarm mode).*

### 3.1.1 Accessing the MAIN MENU [95] + [Preset] / [Menu]

When you use Pelco-D and Pelco-P protocol with your controller, you can access to the MAIN MENU by pressing the key [95] + [Preset], or by pressing and holding the [**MENU**] key for 2 seconds.

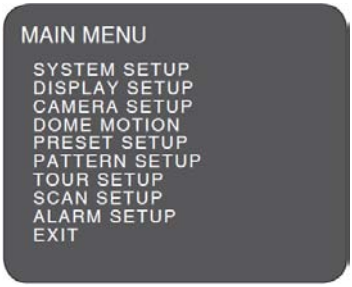



### 3.1.2 Editing TITLE

The title edit menu can be used in the setup for Preset/Pattern/Tour/Scan commonly.

- Move the joystick right in MAIN MENU. The screen appears on the monitor:
- Move the joystick right, left, up or down to select a character.
- Press the [**TELE**] button to input a character and [**WIDE**] button to cancel the character.
- When the label is completed, use [**NEAR**] or move the joystick to save the selected title.
- If you want to cancel the selected title, return to the previous menu using [**FAR**] button.

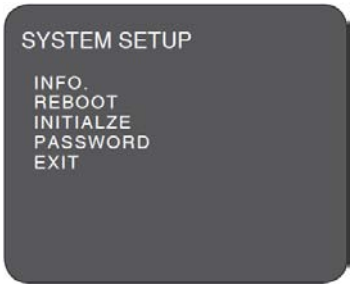
## 3.2 MAIN MENU




To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu.
- **BACK**: to previous menu without saving.

## 3.3 SYSTEM SETUP menu




To navigate within the menu system:

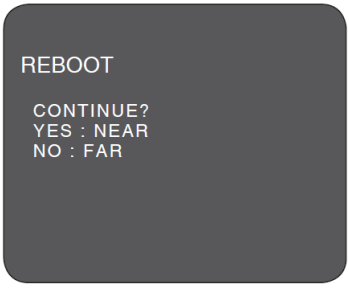
- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back)

### 3.3.1 INFO – System Information

The system Information displays model name, version, Protocol, Communication Type, and camera ID (IDxxx). This is a read-only display. The camera ID reflects the ID switching setting. To display the System Information screen follow the steps below.

1. Open the **MAIN MENU**.
2. Select **SYSTEM** using the joystick [▶].
3. Move the joystick right [▶] for selecting {Info} in the sub menu of {System}.
4. Press **FAR** button or use joystick [▶] to return to previous menu (BACK).

### 3.3.2 REBOOT menu




Reboot the system if there are some anomalous problems to control or operate the domes. Rebooting the system will recycle power of dome and camera without changing settings of dome.

1. Open the **MAIN MENU**.

2. Select **SYSTEM** using the joystick [▶], then move to **REBOOT**.

3. To reboot the system, press the **NEAR** key. To cancel the reboot, press the **FAR** key.

### 3.3.3 INITIALIZE menu

Use this function to initialize all or specific parameters of dome to factory default parameters.

1. Open the **MAIN MENU**.

2. Select **SYSTEM** using the joystick [▶], then move to **INITIALIZE**.

3. Select items to be initialized.
   - [**ALL**]: Clear All saved items (CAM/PRESET/TOUR/PATTERN/SCAN)
   - [**CAM**]: Clear Camera related settings.
   - [**PRESET**]: Clear saved presets. (To clear each preset, refer to PRESET Menu)
   - [**TOUR**]: Clear saved Tours.
   - [**PATTERN**]: Clear saved Patterns.
   - [**SCAN**]: Clear saved Scan items.
   - [**ETC**]: Clear other setting value except items of Camera & PTZs (CAM status and saved data of PRESET, TOUR, PATTERN and SCAN)

4. Press the **NEAR** key or use joystick [▶] to select **CLEAR**, or press the **FAR** key or use joystick [▶] to return to previous menu.

### 3.3.4 Entering a PASSWORD

To prevent unauthorized changes to the dome settings, the dome have the feature of password protection. An unauthorized operator cannot access to any of the dome settings menus. The password must be entered before programming. The valid password with four characters must be entered to continue programming.

1. Open the **MAIN MENU**.
2. Select **SYSTEM** using the joystick [▶], then move to **PASSWORD** using the joystick [▶].
3. Select numbers using joystick left or right, and then press the **TELE** key.
4. To lock (set) the password, select **ENABLE: ENABLE**.

**NOTE** *The default password is:* **0000**

## 3.4 DISPLAY SETUP Menu

To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back)

## 3.4.1 LANGUAGE menu

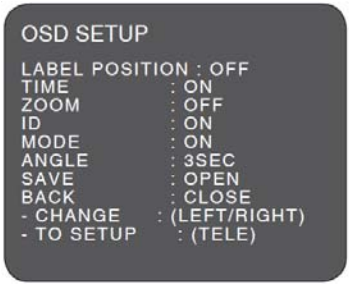
To select a different OSD language:

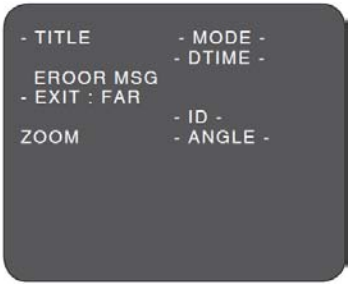
1. Open the **DISPLAY SETUP** menu.

2. Rock the joystick up or down [▲/▼] to select **LANGUAGE**.

3. Rock the joystick left or right [◀/▶] to select the language you prefer. Options: English / Chinese / Russian / Spanish / German / Italian / French / Netherlandish.

## 3.4.2 OSD SETUP menu




OSD setup enables you to configure how labels are displayed on the monitor. These labels include the Title, Dwell Time, Zoom ratio, Camera ID, Operation Mode and PTZ Angle. You can also position the labels.

1. Open the **MAIN MENU**.

2. Select **DISPLAY** using the joystick [▶], then move to **SETUP** using the joystick [▶].

3. Use the joystick to move the label up, down, left, and/or right.

4. Press the **TELE** key to edit the position of labels.

5. Move the joystick right [▶] to change the status of labels.
   - Other labels can be set with same method.

6. Press the **FAR** key to return the previous menu (**OSD SETUP**).

7. Press the **OPEN** key or use joystick to save the status.

8. Press the **CLOSE** key or use joystick to return to previous menu (back).

### 3.4.3 PRIVACY ZONE SETUP menu

A Private mask zone allows an administrator to configure one four-sided zone which cannot be viewed by operators. The mask can be changed with pan angle and tilt angle using the joystick, and can be adjusted in size according to zoom ratio [TELE/WIDE]. A maximum 15 positions can be displayed on the monitor. The speed of displaying masks is proportional to the number of masks on the screen. We recommended that you set the mask size to at least twice the size (height and width) of the object being masked. To setup privacy mask zone:

1. Open the **MAIN MENU**.

2. Select **DISPLAY** using the joystick [▶], then select **PRIVACY ZONE SETUP**.

3. Move the joystick left or right to select a zone ID [00~14].

4. To configure a privacy zone, select EDIT MASK, move to a Target (Pan/Tilt) and adjust a Mask size (Zoom).

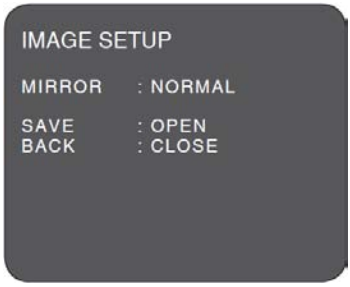
5. After editing a mask, you can resize the width and height using joystick [▶]. (e.g. ~5X)

6. Set display parameter **ON** to display the saved mask.
   - You can clear saved zones (No.xx) individually.

7. Press the **OPEN** key or use joystick to save settings.

8. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.4.4 IMAGE SETUP menu




Use the IMAGE SETUP menu to change the display image settings.

1. Open the **MAIN MENU**.

2. Select **DISPLAY** using the joystick [▶], then select **IMAGE SETUP**.

3. Using joystick [▶], select NORMAL image, HORIZONTAL image, VERTICAL image or H/V image.

4. Press the **OPEN** key or use joystick to save settings.

5. Press the **CLOSE** key or use joystick to return to previous menu (back).

### 3.4.5 MOTION DETECTION (MD) menu

The camera can monitor the movement of image, then send an alarm message with OSD and produce an Alarm Out condition. The sensitivity for movement can be changed to avoid false reporting.

**NOTE** *To temporarily stop alarm (about 10 s), press [**ESC**] key or [**96+preset**].*

1. Set MD/FD for Off/MD/FD using the joystick.
2. Set ALARM mode to OSD / ALARM OUT / BOTH using the joystick.
3. Press the **OPEN** key or use joystick to save settings.
4. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.4.6 RESOLUTION SETUP menu

The camera supports the following resolution: 1080p (30 Hz or 25 Hz), 720p (60 Hz, 50 Hz, 30 Hz, or 25 Hz)

1. Set a Resolution using the joystick [▶].
2. Press the **OPEN** key or use the joystick to save settings.
3. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.5 CAMERA SETUP menu

To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back).

### 3.5.1 FOCUS/ZOOM SETUP

Auto focus allows the lens to remain in focus during zoom-in, zoom-out and motion functions automatically.

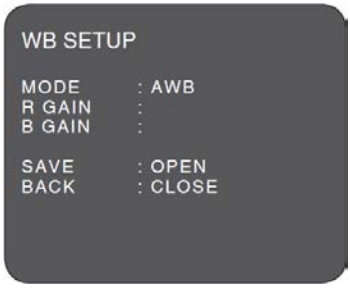
Zoom speed allows the user to define how fast the dome will go from full wide zoom to the 12x optical zoom. There are three modes: SLOW, NORMAL, FAST (default).

D.ZOOM allows the user to use a digital zoom. The default setting is OPTICAL ZOOM without DIGITAL ZOOM.

To use the FOCUS/ZOOM SETUP menu:

1. Open the **MAIN MENU**.
2. Select **CAMERA SETUP** using the joystick [▶], then move to **FOCUS/ZOOM** using the joystick.
3. Set **FOCUS** mode to AUTO, MANUAL, or SEMI-AUTO.
4. Set the **ZOOM SPD** speed to SLOW or NORMAL, if preferred.
5. Set **D.ZOOM** to ON or OFF.
6. Using joystick [▶], select NORMAL image, HORIZONTAL image, VERTICAL image or H/V image.
7. Press the **OPEN** key or use joystick to save settings.
8. Press the **CLOSE** key or use joystick to return to previous menu (back).

### 3.5.2 WB SETUP (white balance setup) menu



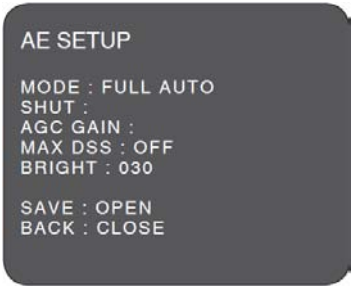

The white balance feature processes the viewed image to retain color balance over a color temperature range. The camera can apply WB compensation in several different modes:

- Manual WB mode: Red and Blue gain values can be set by user (0 ~ 255).
- Auto Trace White balance (ATW): It aligns the white balance automatically. (2,300 to 11,000 K).
- Indoor: 3200 K Base Mode
- Outdoor: 5400 K Base Mode
- Push WB mode: The white balance is aligned during key input. (White balance push auto key)
- Auto White Balance mode (AWB): Wide range auto white balance mode. In this mode, the white balance is performed at a faster operating speed than ATW.

To use the WB SETUP menu:

1. Open the **MAIN MENU**.
2. Select **CAMERA SETUP** using the joystick [▶], then move to **WB SETUP** using the joystick.
3. Set the WB mode to AWT, INDOOR, OUTDOOR, ONEPUSH, AWB, or MANUAL.
4. Press the **OPEN** key or use joystick to save settings.
5. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.5.3 AE SETUP (auto exposure setup) menu




When using this menu, consider the following:

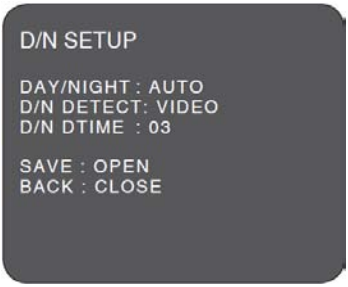
- Shutter speed (SHUT) is the duration of the electronic shutter. Set the shutter speed to operate automatically (AUTO) or manually (numeric value).
- The AGC GAIN (Automatic Gain Control or AGC Max Gain) adjusts the brightness of the pictures. The brightness increases as the number gets higher.
- SSNR enhances digital noise reduction. There are three options: LOW, MIDDLE, or HIGH. When gain level is high, use SSNR to reduce noise to make the image clearer.
- When the input luminance level is too dark, the slow shutter function (DSS) is set higher automatically.
- Brightness (BRIGHT) is a numerical value. The backlight compensation function provides compensation by increasing the brightness of the overall screen so that images with a loss of dark detail due to backlight will have just the right brightness level.

| AE MODE | Full Auto | Manual | SHUT FIX |
|---|---|---|---|
| Shutter (Auto, X2 ~ X64, 1/30 ~ 1/10000) | X | O (Auto) | O (Auto) |
| AGC Gain (OFF, Low, Mid, High) | X | O (High) | X |
| DSS (OFF, X2 ~ X64) | O (Off) | X | X |
| Bright (0~100) | O (50) | O (50) | O (50) |

To use this menu:

1. Open the **MAIN MENU**.
2. Select **CAMERA SETUP** using the joystick [▶], then move to **AE SETUP** using the joystick.
3. Set the **MODE** to FULL, AUTO, MANUAL, or SHUTTER PRI.
4. Press the **OPEN** key or use joystick to save settings.
5. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.5.4 D/N SETUP (day and night setup) menu




The D/N function improves the camera's sensitivity at night or when the brightness level of the ambient environment changes. The day and night filter is automatically switched in accordance with the luminance level. To use this feature:

1. Open the **MAIN MENU**.
2. Select **CAMERA SETUP** using the joystick [▶], then move to **D/N SETUP** using the joystick.
3. Set the **DAY/NIGHT** option to AUTO, DAY, or NIGHT.
4. Set **D/N DETECT** to AUTO, SENSOR, or VIDEO.
5. Set **D/N DTIME** (numeric value) to the preferred switching time.
6. Press the **OPEN** key or use joystick to save settings.
7. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.5.5 ADVANCED SETUP menu

Sharpness enhances picture detail by increasing the aperture gain of the camera and sharpening the edges in the picture. Sharpness enhances picture detail by increasing the aperture gain of the camera and sharpening the edges in the picture.

In the ADVANCED SETUP menu, only one of the following four modes can be selected:

- **BLC:** Back light compensation. A function of the camera that compensates for excessive light directed at the camera causing the video to bloom or causing the images in front of the light to be unusable.
- **WDR**: When both high-brightness subjects and low-brightness subjects are in the image at the same time, overexposure in the high-brightness subjects or loss of dark detail in the low-brightness subjects may occur. The WDR (wide dynamic range) function creates images free from overexposure or loss of dark detail by combining two images after tripping the shutter for a long exposure time and for a short exposure time in one field.
- **HSBLC:** Highlight Suppression Back Light Compensation. The HSBLC function adaptively controls the luminance by darkening selected highlights and brightening dark portion.
- **DNR**: Digital Noise Reduction.

To use the ADVANCED SETUP menu:

1. Open the **MAIN MENU**.

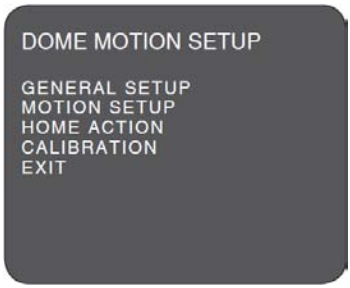
2. Select **CAMERA SETUP** using the joystick [▶], then move to **ADVANCED SETUP** using the joystick.

3. Set the **SHARPNESS** level, brightness, and DIS (ON / OFF)
   - Digital Image Stabilizer (DIS) function internally detects shaking of the image due to camera shaking and performs compensation processing inside the DSP to stabilize the image output. Compensation uses the electronic zoom function, so the digital zoom function cannot be set by the user while using the DIS function.

4. Press the **OPEN** key or use joystick to save settings.

5. Press the **CLOSE** key or use joystick to return to previous menu (back).

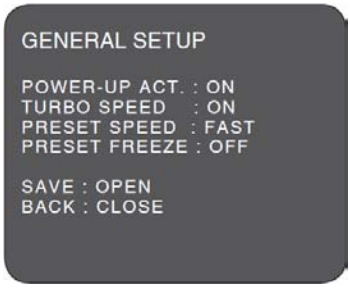
## 3.6 DOME MOTION SETUP menu




To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back)

### 3.6.1 GENERAL SETUP menu




This menu control general function of dome. To use this menu:

1. Open the **MAIN MENU**.

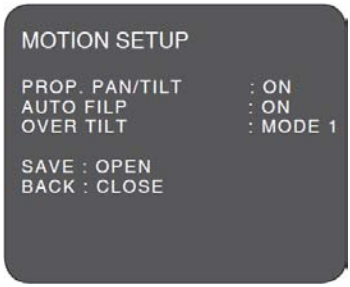
2. Select **DOME MOTION SETUP** using the joystick [▶], then move to **GENERAL SETUP** using the joystick.

3. Set the **POWER-UP ACT** option to ON or OFF.

   — Power-up action is a function (preset, tour, pattern and scan) to be performed when the power is applied (or re-applied) or after an alarm action. Set to ON to resume its prior activity.

4. Set the **TURBO SPEED** option to ON or OFF.
   - Turbo speed defines the pan and tilt speed only for the manual operation of Pan/Tilt.
5. Set the **PRESET SPEED** to FAST, NORMAL, or SLOW.
6. Press the **OPEN** key or use joystick to save settings.
7. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.6.2 MOTION SETUP menu




To use this menu:

1. Open the **MAIN MENU**.
2. Select **DOME MOTION SETUP** using the joystick [▶], then move to **MOTION SETUP** using the joystick.
3. Set the **PROP. PAN/TILT** option to ON or OFF.
   - With proportional pan/tilt set to ON, you can manually set the speed with zoom.
4. Set the **AUTO FLIP** option to ON or OFF.
   - The AUTO FLIP function reverses the image when camera passes the top of tilt direction (90 degree). When tilt angle arrives at the top of tilt orbit (90degree), the camera module keeps moving to the opposite direction of tilt to keep tracking targets. As soon as zoom camera module passes through the top of tilt direction (90degree), image will be reversed automatically.
5. Set the **OVER TILT** to MODE 0, MODE 1, or MODE 2.
   - Over tilt restricts the vertical view angle related to the operational range of the IR sensor and some blocking view angle mechanically. To prevent horizontal view cut due to the tilt angle (with window bubble), over tilt restricts the vertical view angle in each mode.

6. Press the **OPEN** key or use joystick to save settings.

7. Press the **CLOSE** key or use joystick to return to previous menu (back).

### 3.6.3 HOME ACTION SETUP menu

The Home Action setup menu is used to force the camera to a specific action – home, preset, pattern, tour or scan – after the joystick control is idle for specific time. Before a "preset" associated with an action can be selected, it must be pre-established. The time can be set from 1 ~ 60 minutes. To use the HOME ACTION MENU:

1. Set the **ACTION** option to HOME, PRESET, SCAN, or TOUR using the joystick [▶].

2. Set the **NUMBER** associated with the ACTION option. For example, Action: NUMBER: 001 means PRESET 1.

3. Set **TIME** in minutes (1 ~ 60) using the joystick [▶].

4. Set the **MODE** to ON (auto) or OFF (manual) using the joystick [▶].

5. Press the **OPEN** key or use joystick to save settings.

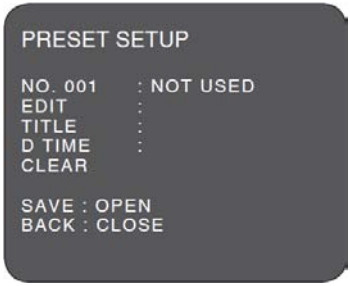
6. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.6.4 CALIBRATION SETUP menu

1. Set the **AUTO CAL** option to MANUAL or AUTO using the joystick [▶].
   - In MANUAL mode, use the joystick [▶] to select CALIBRATION to execute.
2. Set the **ERROR MSG DISP** option to ON or OFF.
3. Press the **OPEN** key or use joystick to save settings.
4. Press the **CLOSE** key or use joystick to return to previous menu (back).

**NOTE** **Calibration** *is a function for automatically correcting an error on the angle of Pan/Tilt. Calibration can be set to* **Manual**/**Auto**. *In MANUAL mode, if there is an error on the angle of the dome, execute* **Calibration** *using the joystick [▶]. Press the* **NEAR** *key to continue calibration, or press* **FAR** *key to cancel calibration. In Auto mode, when there is an error on the angle of the dome, the dome is automatically corrected. The motor of the Pan/Tilt will adjust its angle automatically.* **Error Message Display** *ON will display an error message to alert the user.*

## 3.7 PRESET SETUP menu



To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back).

You can configure up to 210 preset positions. Each preset includes Pan/Tilt/Zoom. Use the following steps to construct a PRESET:

1. Open the **MAIN MENU**.

2. Select **PRESET** using the joystick [▶], then move left or right to select **PRESET NUMBER**.
   - To edit and clear a preset title, select **EDIT**.
   - To clear a saved preset number, select **CLEAR**.

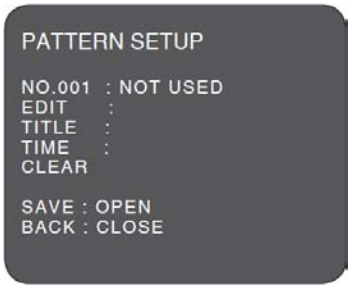
3. Move the joystick right [▶] to edit a PRESET.

4. Using the joystick, move to a desired target position (pan / tilt / zoom).

   - Press the **NEAR** key or use joystick to save settings.
   - Press the **FAR** key or use joystick to return to previous menu (Preset Edit) (back).

5. Set the **D TIME** (dwell time) using the joystick [▶].
   - Press the **OPEN** key or use joystick to save settings.
   - Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.8 PATTERN SETUP menu




To navigate within the menu system:

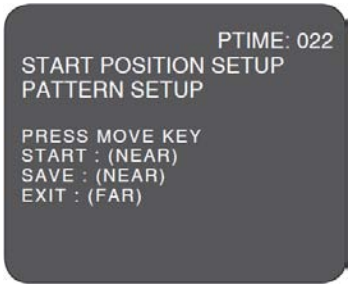
- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back).

A Pattern is used to display (or recall) a memorized, repeated and serial trace of pan, tilt, zoom. You can configure up to 8 patterns, each including a pan / tilt / zoom. Use the following steps to setup a pattern:

1. Open the **MAIN MENU**.

2. Select **AUTO SCAN**, then move right or left to select a pattern number (NO.001).
   - To edit and clear a pattern title, select EDIT.
   - To clear a saved pattern number, select CLEAR.

3. Move the joystick right [▶] to edit the pattern.

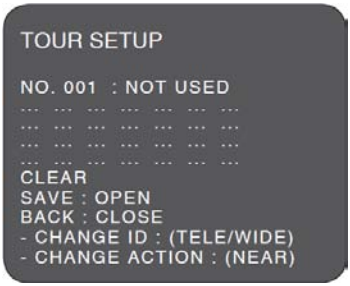


4. Using the joystick, move to the desired target position, then press the **NEAR** key to start configuring the pattern.
   - Press the **NEAR** key or use joystick to save settings.
   - Press the **FAR** key or use joystick to return to previous menu (PATTERN SETUP) (back).

5. Press the **OPEN** key or use joystick to save settings.

6. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.9 TOUR SETUP menu




To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back)

Each tour has 28 items, with each item having a pre-defined preset, pattern, and scan. Additionally, each camera can have 8 group tours. To setup a tour, do the following:

1. Open the **MAIN MENU**.

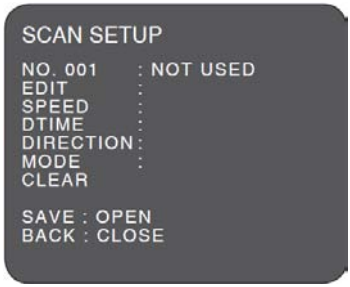
2. Select **TOUR** using the joystick [▶], then move left or right to select the **TOUR NUMBER**.
   - To clear a predefined tour, select CLEAR.

3. Using the joystick [▲,▼, ◀, ▶], move to each item.

4. Select an action number (PRESET, TOUR, PATTERN, and/or SCAN) with the TELE key. You can:
   - Clear the item with the WIDE key.

- Change the mode with the NEAR key.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back).

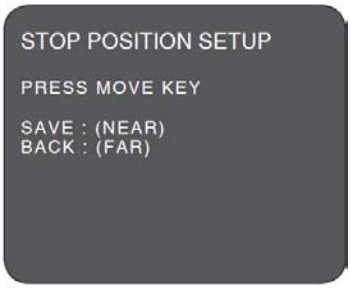
## 3.10 SCAN SETUP (auto scan) menu




To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back).

Auto scan is a PTZ function that moves the camera pan / tilt / zoom from one position to another. You can configure up to 8 auto scans, and scan speed can be changed from 1 °/s to 35 °/s. Use the following steps to program an auto scan:



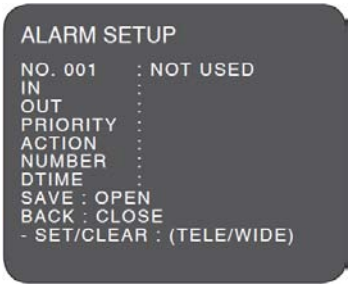

1. Open the **MAIN MENU**.

2. Select **AUTO SCAN** using the joystick [▶], then move left or right to select a scan number (NO. 001).

- To edit and clear a scan title, select EDIT.
- To clear a saved scan number, select CLEAR.

3. Move the joystick right [▶] to edit an AUTO SCAN: edit START POSITION / edit STOP POSITION.
   - Using the joystick, move to a desired target position (pan / tilt / zoom) of edit START POSITION / edit STOP POSITION.
   - Press the **NEAR** key or use the joystick to save settings.
   - Press the **FAR** key or use the joystick to return to the SCAN SETUP menu (back).
4. Set the **DTIME** (dwell time) using the joystick.
5. Press the **OPEN** key or use joystick to save settings.
6. Press the **CLOSE** key or use joystick to return to previous menu (back).

## 3.11 ALARM SETUP menu




To navigate within the menu system:

- ▲/▼: move joystick up and down for selecting an item.
- ◀/▶: move joystick left and right for moving an item.
- ▶/ [**OPEN**]/ [**NEAR**]: move joystick right to select or save values or go to edit pages.
- ▶/ [**CLOSE**]/ [**FAR**]: move joystick to cancel or to exit current menu (back).

To use the ALARM SETUP menu:

1. Open the **MAIN MENU**.
2. Use the joystick to select the **NUMBER** associated with the/an ALARM SETUP.
   - To clear a saved alarm setup (number), press the **WIDE** key.

3. Using the joystick [▶], select the alarm input type (normally open, NO or normally closed, NC).

4. Using the joystick [▶], select the alarm output state (ON / OFF).

5. Set the alarm **PRIORITY** using the joystick.

6. Set the **ACTION** (Off, Preset, Pattern, Scan, or Tour) and the action **NUMBER**. The numbered action must be predefined.

7. Set the **DTIME** (alarm action time, 3 ~ 60 s). The default setting is ON.
   - TIME OUT (3 ~ 60 s): When an alarm is activated, the alarm output is active for the configured alarm activation time (DTIME).
   - MOMENTARY (ON): When an alarm is activated, the alarm output is active continuously until manually deactivated (96 + PRESET, or by changing the ALARM SETUP menu).
   - To temporarily pause an alarm for 10 seconds, press the ESC key.

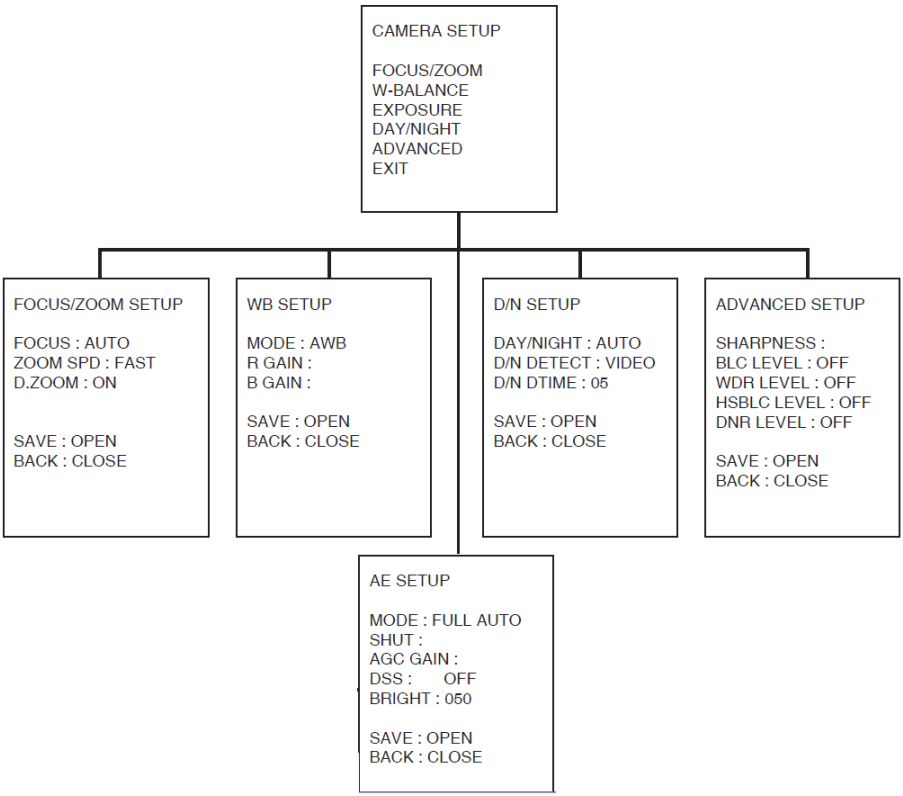
8. Press the **OPEN** key or use joystick to save settings.

9. Press the **CLOSE** key or use joystick to return to previous menu (back).

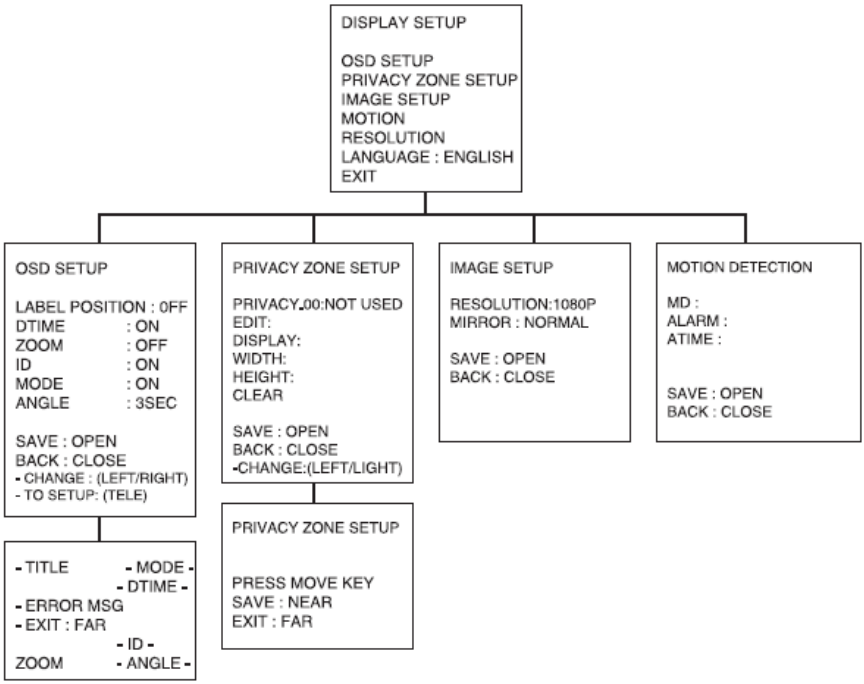
**NOTE** *The camera supports four alarm inputs (AL0 - AL3).*
*AL3 can be used as a digital input for an external D/N. If configured this way, only AL0 - AL2 can be hardware alarm inputs.*

SECTION 4
# OSD Menu Structure Reference

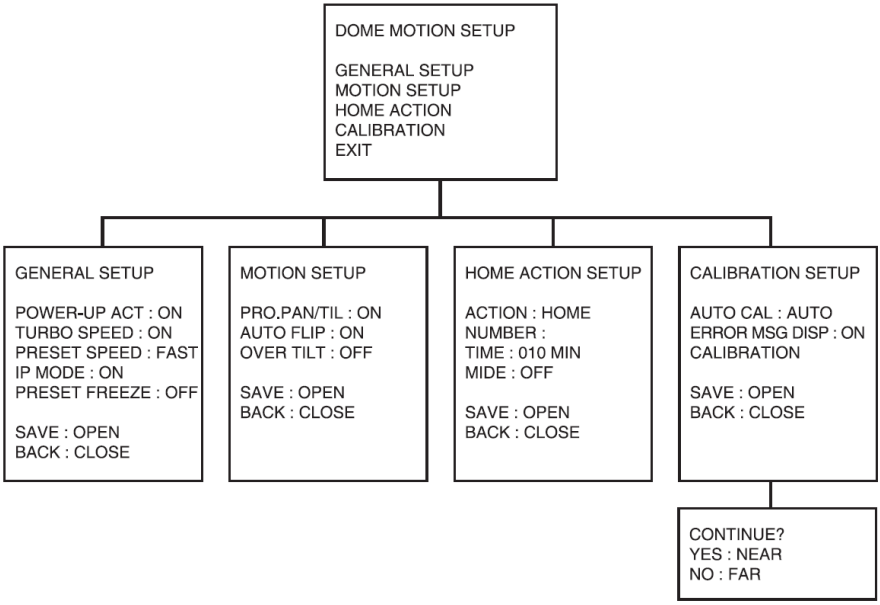
## 4.1 CAMERA SETUP submenus



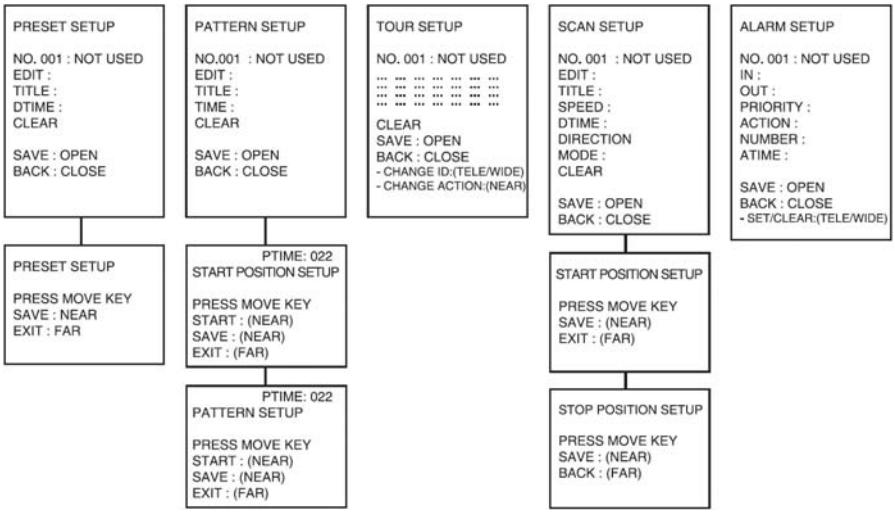
## 4.2 DISPLAY SETUP submenus



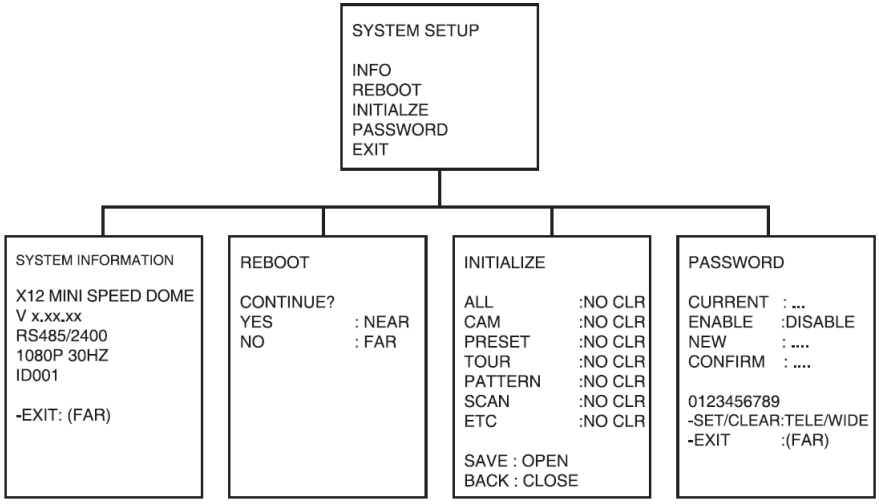
## 4.3 DOME MOTION SETUP submenus



## 4.4 Miscellaneous submenus




## 4.5 SYSTEM SETUP submenus



# SECTION 5
# Specifications

## Table 2. Component Specifications

| Parameter | Value |
|---|---|
| **General** | |
| Image device | 1/3" CMOS |
| Effective pixels | ~ 2.1 Megapixel |
| Video signal | HD: 1920 x 1080 (full-HD,1080p @ 30 fps), 1280 x 720 (HD, 720p @ 60 fps) |
| | SD: NTSC, PAL |
| Lens | 12x optical /10x digital zoom (auto focus) |
| View angle | 52.4° (wide end) to 4.64° (tele end) approximately |
| Minimum illumination | TBD |
| WDR | On / Off |
| DNR | 3DNR |
| Privacy masking | 8 zones maximum |
| Video Output | HD-SDI, CVBS output, HDcctv compliant |
| **Electrical** | |
| Power supply | 24 Vac (±10%) Normal, built-in power line surge protection |
| Power requirement | 24 Vac, 950 mA (2.5 A with heater) |
| Power consumption | 25 W (without heater) maximum |
| Alarm output | 1 normal relay 5 Vdc / 40 mA maximum (selectable NC / NO) |
| Alarm input | 4 normal dry contact (selectable NC / NO) |
| Control | RS-485 baud rate: 2400~38400 Kbps (default: 2400 bps) |
| Access time | 0.75 second maximum preset recall time |
| ID (camera address) | 1 - 99 (physical switches) |
| **Mechanical** | |
| Weight | 3.3 lb (1.5 kg) |
| Dimension | Ø6.06 in x 5.43 in (Ø154 mm x 138 (*h*) mm), bubble dome: Ø4.33 in (Ø110 mm) |
| Pan Angle | 360° continuous rotation |
| Tilt Range | 0 ~ 180° |
| Speed | 360°/ s maximum preset speed |
| Flip | Rotate 180° at bottom of tilt |

## SECTION 5: SPECIFICATIONS

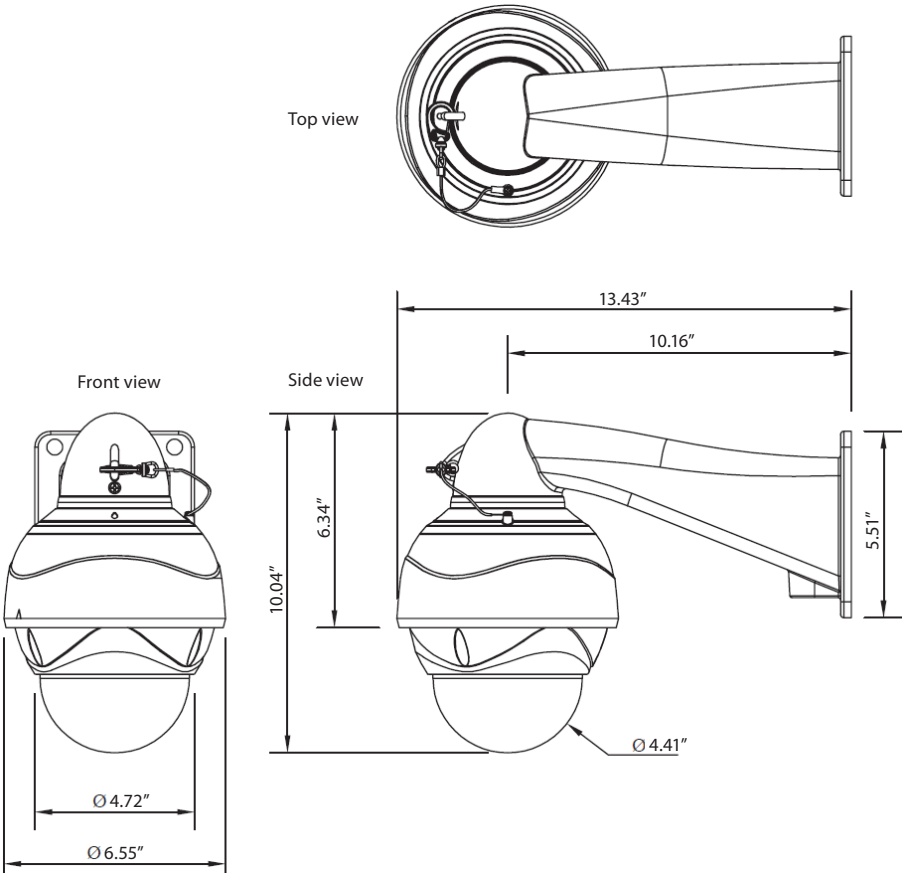
| Parameter | Value |
|---|---|
| Auto scan | 8 auto scan, includes vector scan |
| Preset position | 210 position with camera status |
| Tour | 8 tour (preset, pattern, scan) |
| Pattern | 8 pattern |
| On Screen Display (OSD) | Display camera ID, title, mode, and angle on screen (multi-language) |
| OSD language options | English, Chinese, Russian, Spanish, German, Italian, French, Netherlandish |
| **Environment** | |
| Operating Temperature | 14 °F ~ 122 °F (-10 °C ~ 50 °C) |
| | Heater on: -40 °F ~ +50 °F (-40 °C ~ +10 °C) |
| Heater (internal) | On/Off: 32 °F~ 50 °F (0 °C~ 10 °C) |
| Operating humidity | ≤ 80 % RH |
| Storage temperature | -4 °F ~ 140 °F (-20 °C~60 °C) / ≤ 90 % RH |

# APPENDIX A
# Troubleshooting

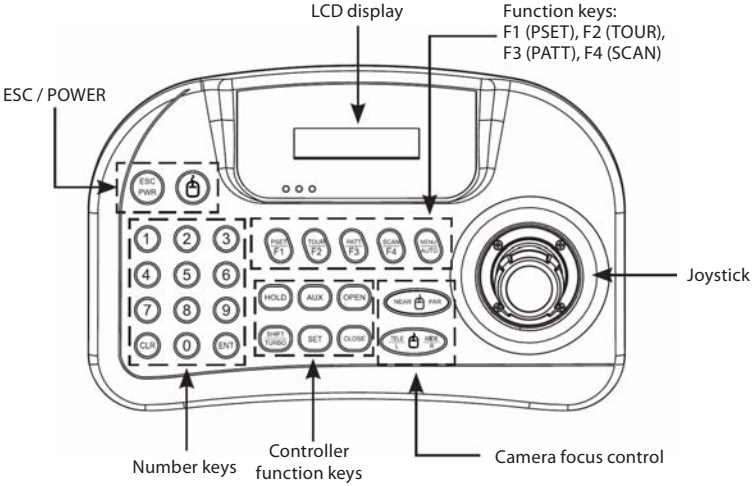
If problems occur, check the installation of the dome with the instructions in this manual. And refer to this manual for further information.

| Problem | Solution |
|---|---|
| No video on the screen | - Verify that power is connected to all components in the system.<br>- Verify that the power switches are ON.<br>- Verify the status of cables or connection of cables |
| Poor video quality. | - Check the power supply voltage (normal 24 Vac)<br>- Check the setting of camera.<br>- If the lens or the dome is dirty, clean up the dome windows with a clean cloth. |
| Dome camera is not working properly (including wrong position of dome camera) | - Re-cycle the power supply, reconnect the power cables.<br>- Reset the camera using the Dome configuration menus (Main>System>Reboot)<br>- Check that the connection of power cable and assembling status of dome camera.<br>- Initialize the dome camera. (Main>System>Initialize) |
| The communication between controller and camera is not working properly. (via RS-485 cable) | - Verify that the RS-485 communication cable is connected correctly.<br>- Verify that the camera ID / Protocol / Baud rate / Termination Setting matches the controller configuration.<br>- Verify that the camera termination setting is appropriate for the RS-485 network (SW303, switch 5) |
| The surface of the dome case is hot. | - Check the voltage level of the dome camera and the assembling status of dome camera.<br>- Check that the dome camera is connected to the proper power. |
| The image on the screen flickers | - Does the camera face directly into the sun or fluorescent lamp? If so, reposition the dome. Check for flickerless setting configuration setting. |
| The zoom lens is calibrated without user action. | The zoom lens automatically reverts to the original position after 12 hours of use. This behavior prevents errors resulting from unexpected shock. |

## APPENDIX B
# Camera Dimensions



# APPENDIX C
# Pelco™ Protocol Function List




*PTZC4 PTZ controller*

**Table 3. Pelco functions based on Observint Technologies PTZC4 controller**

| Function | Key | Preset number | Operation | Example 1 | Example 2 |
|---|---|---|---|---|---|
| Preset | Preset | 1 ~ 59, 101 ~ 253 | No. + Preset | 1 + Preset | – |
| Preset shortcut saving | * Preset | 1 ~ 59, 101 ~ 253 | * | * | – |
| Run PAN | Preset | 33 | No. + Preset | 33 + Preset | – |
| Run PAN ZERO | Preset | 34 | No. + Preset | 34+ Preset | – |
| Scan setup | Preset | 60 | No. + Preset | 60 + Preset | – |
| Scan | Preset / Scan | 61 ~ 69 | No. + Preset | 61 + Preset | 1 + Scan |
| Tour setup | Preset | 70 | No. + Preset | 70 + Preset | – |
| Tour | Preset / Tour | 71 ~ 78 | No. + Preset | 71 + Preset | 1 + Tour |
| Pattern setup | Preset | 80 | No. + Preset | 80 + Preset | – |
| Pattern | Preset / Pattern | 81 ~ 88 | No. + Preset | 81 + Preset | 1 + Pattern |
| MENU key | Preset / ** Menu | 95 | No. + Preset | 95 + Preset | ** Menu |
| ESC key | Preset | 96 | No. + Preset | 96 + Preset | – |
| D. Zoom (toggle) | Preset | 97 | No. + Preset | 97 + Preset | – |

* To save the position of the dome, press the number of the preset and press and hold the PRESET key for 2 seconds.
** To go to the OSD main menu, press and hold the MENU key for 2 seconds.